

Application No. 10/801,402
Response to Office Action

Customer No. 01933

Listing of Claims:

Claims 1-23 (Canceled).

24. (New) A defect inspection apparatus comprising:
an inspection section which inspects a front surface and a
rear surface of a sample;

5 a control section which processes image data of the front
surface and the rear surface of the sample obtained by the
inspection section;

a front surface moving section provided in the inspection
section which moves the sample for inspection of the front
surface;

10 a rear surface moving section provided in the inspection
section which moves the sample for inspection of the rear
surface; and

15 a front surface illumination section and a rear surface
illumination section which respectively illuminate the front
surface and the rear surface for inspection;

a front surface image pickup section and a rear surface
image pickup section which respectively pick up an image of the
illuminated front surface and an image of the illuminated rear
surface;

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20 wherein at least one of: (i) respective incidence angles of
the front surface illumination section and the rear surface
illumination section on the sample, and (ii) respective image
pickup angles of the front surface image pickup section and the
rear surface image pickup section with respect to the sample, are
25 changeable;

wherein the rear surface illumination section and the rear
surface image pickup section are arranged along a moving path of
the rear surface moving section to inspect the rear surface of
the sample;

30 wherein at least the rear surface illumination section
comprises a linear light source which irradiates a linear
parallel light beam to the rear surface of the sample at a
predetermined incidence angle, and at least the rear surface
image pickup section comprises a line sensor camera which picks
35 up the image of the rear surface illuminated by the light beam
from the linear light source; and

wherein the sample is moved to and from the front surface
moving section via at least the rear surface moving section, and
the rear surface of the sample is inspected while the rear
40 surface moving section moves the sample.

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25. (New) The apparatus according to claim 24, wherein the rear surface moving section moves the sample at a constant velocity.

26. (New) The apparatus according to claim 24, wherein the rear surface moving section comprises a carrying arm which holds the sample while exposing the rear surface of the sample.

27. (New) The apparatus according to claim 24, wherein the rear surface moving section comprises a plurality of non-contact carrying conveyors which carry the sample, and wherein a clearance is provided in a carrying path of the carrying conveyors such that the image of the rear surface is picked up through the clearance.

28. (New) The apparatus according to claim 24, further comprising a carrying section which carries the sample to the inspection section;

wherein the inspection section comprises: (i) a front surface inspecting section including the front surface moving section, the front surface illuminating section and the front surface image pickup section, for inspecting the front surface of the sample, and (ii) a rear surface inspection section including the rear surface moving section, the rear surface illuminating

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10 section and the rear surface image pickup section, for inspecting the rear surface of the sample; and

wherein the rear surface inspection section is provided between the carrying section and the front surface inspection section.

29. (New) The apparatus according to claim 24, wherein the incidence angle of the front surface illumination section and the image pickup angle of the front surface image pickup section are set as a first angle to pick up a regular reflection image of the front surface at a first image pickup time, and at least one of the incidence angle of the front surface illumination section and the image pickup angle of the front surface image pickup section is set as a second angle different from the first angle to pick up an image of the front surface other than the regular reflection image of the front surface at a second image pickup time; and

wherein the incidence angle of the rear surface illumination section and the image pickup angle of the rear surface image pickup section are set as a first angle to pick up a regular reflection of the rear surface image at a first image pickup time, and at least one of the incidence angle of the rear surface illumination section and the image pickup angle of the rear surface image pickup section is set as a second angle different

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from the first angle to pick up an image of the rear surface
20 image other than the regular reflection image of the rear surface
image at a second image pickup time.

30. (New) The apparatus according to claim 29, wherein the
regular reflection images of the front surface and the rear
surface are picked up when the sample is moved in a first
direction, and the images of the front surface and the rear
5 surface other than the regular reflection images are picked up
when the sample is moved in a direction opposite to the first
direction.